

# Fossil Molds and Casts

## Materials

### Activity I:

For each student:

- modeling clay
- two sugar cubes
- plastic bowl
- water
- plastic spoon

### Activity II:

For each student:

- seashell
- cotton swab
- 9 oz. plastic cup
- newspaper
- modeling clay

For each group (3-4):

- 16 oz. plastic cup
- petroleum jelly
- water
- Plaster of Paris
- plastic spoon

**Grade levels:** 2nd-8th

## Louisiana GLEs

**Grade 2:** SI 1, 2, 3, 4, 6; ESS 36, 42

**Grade 3:** SI 1, 2, 3, 4, 6; LS 35, 38; ESS 49, 52

**Grade 4:** SI 1, 2, 3, 4, 7; LS 48

**Grade 5:** SI 1, 2; ESS 36, 38

**Grade 6:** SI 1, 2

**Grade 7:** SI 1, 2

**Grade 8:** SI 1, 2; ESS 25, 31



*These activities demonstrate two different fossil types, molds and casts, and how they are created.*

## Background

Paleontologists refer to a remnant or trace of an ancient living organism that has been preserved in rocks or sediments as a fossil. **Fossils** are formed when an organism, trace of an organism (i.e., footprint), plant, etc. is quickly buried and preserved in sediment. Then the sediment itself is buried and becomes a rock. There are actually many different types of fossils that can range from a 3-foot dinosaur skull to microscopic animal shells. Most fossils we find today are of an organism's hard parts. Hard parts consists of shells, bones, wood, teeth, horns, etc. Soft parts, such as tissue or skin, is rarely preserved. The most common fossil types found in nature are trace fossils. They are impressions left in sediment from once living organisms. Common trace fossils include footprints, shell prints, animal walkways, and burrows.

There are two main types of trace fossils, **molds** and **casts**. A mold occurs when something falls into soft sediment that conforms around the shape of that organism. If the organism disappears, either because of mechanical or chemical weathering, the cavity (mold) remains. A cast forms when sediment may infill a mold preserving a 3-D example of the entire shape.

## Procedure

### I. Sugar cube impression

1. Place a sugar cube in warm water. Watch it dissolve.
2. Wrap the second sugar cube in modeling clay and submerge it in water.
3. Take the clay out of the water after a minute or so and then unwrap.
4. Describe what happens to the wrapped sugar cube. How are the wrapped and unwrapped sugar cubes different?
5. Explain that mud and other sediments can prevent decay of an organism by protecting it from exposure to water/oxygen/etc.

### II. Seashell mold and cast

1. Flatten a layer of modeling clay in the bottom of the 9 oz. cup.
2. Use the cotton swab to cover the top surface with a thin layer of petroleum jelly.
3. Place the top of the sea shell into the clay. Press down gently.
4. Remove the shell. You should see an impression of the shell in the clay.
5. In the 16 oz. cup mix half the cup with the plaster of Paris and water according to the package directions.
6. Pour the mixture into the 9 oz. cup so that it covers the clay surface completely.
7. Allow to dry completely (30- 45 minutes or overnight).
8. Turn over the cup and pop the plaster out of the clay. There should be a cast of the shell in the plaster.

## Discussion

Ask the students what does the modeling clay represent? The Plaster of Paris? Students have just made a mold and a cast. What fossil type gives the most information about the object preserved? Why?